

REMARKS

This application has been carefully reviewed in light of the final Office Action dated February 2, 2009. Claims 1 to 14 are in the application, with Claims 1, 7 and 12 being independent. Claims 1, 7 and 12 have been amended. Reconsideration and further examination are respectfully requested.

In the Office Action, Claims 1 to 3, 6 to 9 and 12 to 14 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 7,853,465 (Ohnishi) in view of U.S. Patent No. 6,490,055 (Shimzu); and Claims 4, 5, 10 and 11 were rejected under 35 U.S.C. § 103(a) over Ohnishi in view of Shimzu. Reconsideration and withdrawal are respectfully requested.

Independent Claim 1 as amended generally concerns a printing control apparatus for outputting print data and executing printing. The apparatus includes storage means, to which rendering instructions are input, for storing the rendering instructions page by page, and first rendering means for developing rendering instructions of each scan line into multivalued bitmap data and subjecting the multivalued bitmap data to color processing and n-value conversion processing. The apparatus further includes second rendering means for subjecting the rendering instructions to color processing and n-value conversion processing color by color of the rendering instructions, storing the results in the form of an n-valued pattern, and rendering the n-valued pattern of each scan line into n-valued bitmap data, and determining means for reading out rendering instructions that have been stored in the storage means and determining whether the rendering instructions include a rendering instruction other than overwrite for each scan line. In addition, the apparatus includes control means for extracting edges of objects in the rendering

instructions in each scan line and exercising control so as to cause the first rendering means to form the multivalued bitmap data between the edges if the determining means determines that the rendering instructions include a rendering instruction other than the overwrite for a scan line, and to cause the second rendering means to form the n-valued bitmap data if the determining means determines that the rendering instructions do not include a rendering instruction other than the overwrite for the scan line. The control means causes the first rendering means or the second rendering means to develop the rendering instructions into bitmap data line by line.

Thus, among its many features, Claim 1 provides for (i) developing rendering instructions of each scan line into multivalued bitmap data and subjecting the multivalued bitmap data to color processing and n-value conversion processing, (ii) subjecting the rendering instructions to color processing and n-value conversion processing color by color of the rendering instructions, storing the results in the form of an n-valued pattern, and rendering the n-valued pattern of each scan line into n-valued bitmap data, and (iii) determining whether the rendering instructions include a rendering instruction other than overwrite for each scan line.

By virtue of the foregoing, since the determination of whether or not the rendering instructions include a rendering instruction other than overwrite is made for each scan line, and since the rendering associated with foregoing features (i) and (ii) is performed for each scan line, it is possible to develop the rendering instructions into bitmap data line by line.

Turning to the applied references, Ohnishi and Shimzu are not seen to disclose or suggest at least foregoing features (i) to (iii).

As understood by Applicant, Ohnishi discloses developing a drawing command into a multi-value bitmap image by each line of one page, to generate bitmap image of the page. See Ohnishi, Abstract. It is Applicant's understanding that in Ohnishi, whole image data of one page must be stored, as shown S21-5 in Figure 21 and S26-17 in Figure 26 of Ohnishi. Thus, a large capacity of image memory is necessary as shown in Figure 4 of Ohnishi.

However, Ohnishi is not seen to disclose or suggest (i) developing rendering instructions of each scan line into multivalued bitmap data and subjecting the multivalued bitmap data to color processing and n-value conversion processing, (ii) subjecting the rendering instructions to color processing and n-value conversion processing color by color of the rendering instructions, storing the results in the form of an n-valued pattern, and rendering the n-valued pattern of each scan line into n-valued bitmap data, and (iii) determining whether the rendering instructions include a rendering instruction other than overwrite for each scan line. Moreover, Ohnishi is also not seen to disclose or suggest the attendant benefits provided by such features.

In addition, Shimzu has been reviewed and is not seen to compensate for the deficiencies of Ohnishi. In particular, Shimizu is not seen to disclose or suggest foregoing features (i) to (iii), nor the attendant benefits provided thereby.

Claim 1 is therefore believed to be allowable over the applied references.

In addition, independent Claims 7 and 12 are method and printer driver claims, respectively, which generally correspond to apparatus Claim 1. Accordingly, Claims 7 and 12 are believed to be allowable for the same reasons.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied reference for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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